

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

ANNUAL COMPLIANCE REVIEW, 2022

Docket No. ACR2022

**RESPONSES OF THE UNITED STATES POSTAL SERVICE TO
QUESTIONS 1-7 OF CHAIRMAN'S INFORMATION REQUEST NO. 19**

The United States Postal Service hereby provides its responses to the above-listed questions of Chairman's Information Request No. 19, issued on March 20, 2023. Each question is stated verbatim and followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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1. In discussing actions to achieve the High-Quality Service goal in FY 2023, the Postal Service states that it plans to “[m]oderniz[e its] . . . technologies,” to invest in “[o]perational technologies that will grow [its] enterprise analytics and real-time data collection capabilities[,]” and to take steps to “enable advanced parcel automation[.]”¹
 - a. Please discuss the extent to which such technology modernization and investment may include technologies incorporating, or otherwise using, artificial intelligence (AI) technologies.
 - b. Please discuss the Postal Service’s general practices for considering whether to incorporate or otherwise use AI technologies when enhancing its sorting, processing, and other operations or when investing in new equipment and systems.

RESPONSE:

- a. The Postal Service currently incorporates AI into certain data collection activities. For example, the Edge Compute Infrastructure Program (ECIP), to which the Commission alludes in footnote 1 below, is employed to analyze images to in turn help guide the sortation of specific packages. The Postal service may expand the use of such technologies as circumstances warrant.
- b. Decisions to incorporate or otherwise use AI technologies are context dependent. If a specific AI technology is found to provide a possible benefit—if, for example, that technology can potentially resolve a problem that the Postal Service seeks to address—the Postal Service will consider adopting that technology, weighing its merits against those of other available options.

¹ *FY 2022 Annual Report* at 36; see Library Reference USPS-FY22-NP31, folder “Rule 3050.55 Cost Reduction;” Yevgeniy Sverdlik, “How the US Postal Service Is Using AI at the Edge to Improve Mail,” DataCenterKnowledge.com, May 6, 2021, available at <https://www.datacenterknowledge.com/machine-learning/how-us-postal-service-using-ai-edge-improve-mail>.

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2. In discussing actions that it will pursue to achieve the High-Quality Service goal in FY 2023, the Postal Service references plans to “[i]nvest[] in new vehicles, equipment, systems, and facilities.”²
- a. Please discuss the extent to which such new vehicles and systems may include unmanned aerial vehicles (UAVs), autonomous mobile robots (AMRs), autonomous long-haul vehicles (ALHVs), or comparable systems.
 - b. Please discuss any plans the Postal Service may have to evaluate, in FY 2023, the potential implementation of UAVs, AMRs, ALHVs, or comparable systems.
 - c. Please discuss the extent to which the new vehicles and systems in which the Postal Service plans to invest otherwise may make use of level 3 or higher automation technologies (*i.e.*, technologies beyond cruise control (or comparable speed regulation) and driver assistance). See OIG Report No. RARC-WP-18-006 at 5.
 - d. To what extent does the Postal Service currently plan to explore using autonomous vehicle technology to improve service quality, efficiency, and/or employee safety? Please describe such plans and identify any relevant materials in Library Reference USPS-FY22-NP31 or otherwise filed in this proceeding.
 - e. Please provide any studies, analyses, or evaluations that the Postal Service may have prepared regarding any service-performance- or safety-related benefits of using UAVs, AMRs, ALHVs, or automation technologies in its operations.

RESPONSE:

² FY 2022 Annual Report at 35; see *id.* at 36-37; Library Reference USPS-FY22-NP31, folder “Rule 3050.55 Cost Reduction”; see also United States Postal Service, Office of the Inspector General (“OIG”), Report No. RISC-WP-21-007, *Step into Tomorrow: The U.S. Postal Service and Emerging Technology*, Aug. 26, 2021, at 10-11, available at, <https://www.oversight.gov/sites/default/files/oig-reports/USPS/RISC-WP-21-007.pdf> (describing the Postal Service’s 2019 Request for Information about the use of UAVs in delivery and its successful 2019 pilot test of autonomous long-haul transport vehicles); OIG Report No. RARC-WP-18-006, *Autonomous Mobile Robots and the Postal Service*, Apr. 9, 2018, at 5, 9-12, available at <https://www.oversight.gov/sites/default/files/oig-reports/RARC-WP-18-006.pdf> (OIG Report No. RARC-WP-18-006) (describing experimentation by foreign postal operators and U.S. delivery providers with AMRs); OIG Report No. RARC-WP-18-001, *Autonomous Vehicles for the Postal Service*, Oct. 2, 2017, available at <https://www.uspsoig.gov/sites/default/files/reports/2023-01/RARC-WP-18-001.pdf> (identifying various potential use cases for autonomous vehicles in Postal Service operations).

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a. The Postal Service does not intend to invest in any new AMR systems in FY 2023 but will instead continue to support its existing fleet of AMR and Automated Guided Vehicle (AGV) systems.

Though no specific plans have been finalized for FY 2023, the Postal Service is interested in exploring the possibility of autonomous vehicles assisting with local delivery and/or long-haul transportation. Toward that end, the Postal Service is evaluating the market for potential level 3 to level 4 autonomous vehicle suppliers.

b. The Postal Service does not plan to implement any new AMR systems in FY 2023 but will instead continue to evaluate its existing systems for operational and standardization improvements.

As noted in response to subpart a. above, the Postal Service is evaluating the market for potential level 3 to level 4 autonomous vehicle suppliers.

c. The Postal Service does not plan to invest in any of the technologies found in OIG Report No. RARC-WP-18-006 at 5.

As noted in response to subpart a. above, the Postal Service is evaluating the market for potential level 3 to level 4 autonomous vehicle suppliers.

d. The Postal Service deploys a number of AGV and AMR systems throughout the country. These systems are critical to moving and sorting mail product (either palletized or containerized mail) inside sortation plants. The Postal Service is not currently considering the purchase of additional systems; rather, it is in the process of redeploying existing systems to accommodate volume shifts.

Folder USPS-FY22-45 (the public counterpart of USPS-FY22-NP31) contains references to three such systems. See, in "Requested Information Pertaining to Cost

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Reduction Initiatives,” “Automated Guided Vehicle (AGV) Program - Phase 2” and “Flex Rover Sorter”; see also, in “FY2022 Approved DAR Programs >\$1 million and <\$5 million with Projected Savings,” a description of the use of AMRs “for key letter mail transport activities at the Phoenix Processing and Distribution Center (P&DC).”

As noted in response to subpart a. above, the Postal Service is evaluating the market for potential level 3 to level 4 autonomous vehicle suppliers. The Postal Service is exploring the potential of automated vehicle technologies to help avoid accidents and ensure that vehicles remain on the correct route.

e. The Postal Service recently conducted a pilot study involving autonomous trucks. Please see the results of this study filed under seal in association with this response.

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3. In the FY 2022 ACR, the Postal Service states that to help improve customer experience (CX), it developed and implemented an AI ChatBOT on its Facebook Messenger platform to resolve customer issues without agent interaction for basic tasks such as tracking number lookup and stamp prices. FY 2022 ACR at 83.
- a. Please confirm that the Postal Service sends a customer satisfaction survey to customers who contact the Postal Service for help via the AI ChatBOT.³
 - b. If confirmed:
 - i. Please provide all surveys used in FY 2022 to evaluate CX with using the AI ChatBot.
 - ii. For each survey provided in response to question 3.b.i., please provide: (1) a description of the customer type targeted by the survey, (2) the number of surveys initiated in FY 2022, (3) the number of surveys returned in FY 2022, (4) the average customer satisfaction score in FY 2022, and (5) a tally of the responses to each FY 2022 survey question, disaggregated by each of the possible responses.⁴
 - c. If not confirmed, please explain how the Postal Service evaluated CX for customers who contacted the Postal Service for help via the AI ChatBOT in FY 2022.

RESPONSE:

- a. Confirmed. The Postal Service sends a customer satisfaction survey to the customer after the customer indicates the ChatBOT's selection option was helpful. If a customer indicates that the ChatBOT's selection option was not helpful, the customer is transferred to a Social Media Associate.
- b.

³ See Docket No. ACR2021, Responses of the United States Postal Service to Questions 1-11 of Chairman's Information Request No. 29, April 25, 2022, question 7.

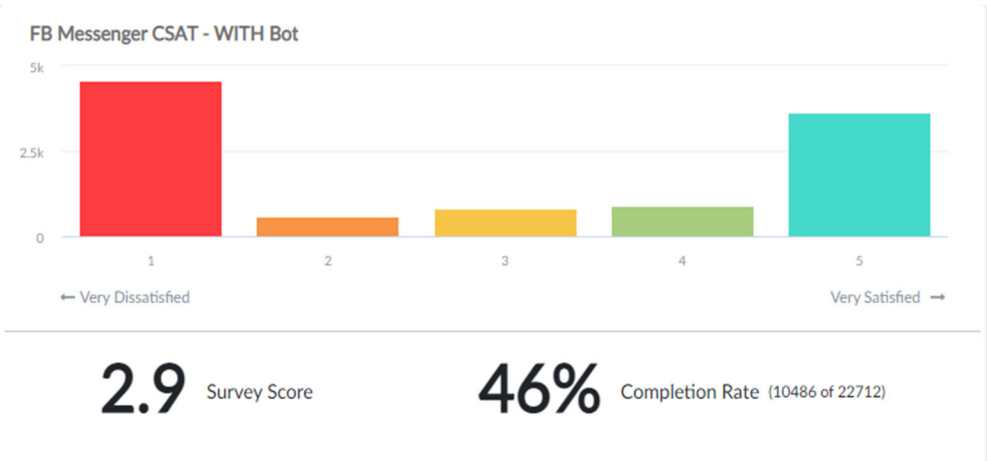
⁴ See 39 C.F.R. § 3055.92(b).

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- i. Only one survey is used to evaluate customer satisfaction with the ChatBOT. The single survey question asked is: "How would you rate your service experience with USPS?" The customer would then select an option from 1 (very dissatisfied) to 5 (very satisfied).

- ii.
 - (1) All customers that chat with the Postal Service through the Facebook Messenger page can use the ChatBOT and may participate in the subsequent survey.
 - (2) In FY 2022, the Postal Service initiated 22,712 surveys to customers that used the ChatBOT through the Facebook Messenger page.
 - (3) Of the 22,712 surveys initiated in FY 2022, 10,486 surveys were returned.
 - (4) In FY 2022, the average customer satisfaction score was a 2.9 out of 5.0.
 - (5) As noted in response to part (i) of this question, only one survey is used to evaluate customer satisfaction with the ChatBOT. The single survey question asked is: "How would you rate your service experience with USPS?" The customer would then select an option from 1 (very dissatisfied) to 5 (very satisfied). The chart below shows the breakdown of customer responses to this question in FY 2022.

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4. In the FY 2022 ACR, the Postal Service states that the AI ChatBOT resolved more than 44,915 customer issues without agent interaction. FY 2022 ACR at 83.
- a. Please describe how the Postal Service determined whether customer needs were resolved without agent interaction after using the AI ChatBOT to contact the Postal Service for help.
 - b. Please identify the number of AI ChatBOT conversations in FY 2022 that were terminated without agent interaction and without resolving the customer's issue. In the response, please explain whether and how the Postal Service followed up with customers with issues that were not resolved after using the AI ChatBOT. If the Postal Service did not follow up with customers with unresolved issues, please explain why.
 - c. Please estimate the cost to develop and implement the AI ChatBOT.
 - d. Please quantify or estimate the impact of the AI ChatBOT on CX survey results in FY 2022.
 - e. Please describe any lessons learned from using the AI ChatBOT in FY 2022 and any plans to improve the AI ChatBOT's efficacy in FY 2023.

RESPONSE:

- a. After interacting with the ChatBOT, customers are asked if the information provided was helpful. Those who answer affirmatively are considered resolved.
- b. At any point in time when interacting with the ChatBOT, the customer has the option of being transferred to a Social Media Associate. Also, when a customer indicates at the end of an interaction that the ChatBOT was not helpful, the customer is directed to a Social Media Associate. Based on this process, a total of 89,181 customers were transferred to a pool for follow up from Social Media Associates. Of these, 70,023 customer matters were reviewed by Social Media Associates within 48 hours and closed. Due to the availability of Social Media Associates, the remaining 19,158 customer matters were not addressed within 48 hours and were removed from the system. Attempting to address customer

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matters after 48 hours is not an efficient practice given that customers may have already resolved their concerns or have sought alternative resolution options.

- c. Details regarding the procurement costs relating to the ChatBot are filed under seal.
- d. The ChatBOT, although a relatively new technology, has improved the Postal Service's ability to address self-help customers' needs and concerns, something that the Postal Service was not able to previously address due to limited resources. For instance, Social Media Associates can resolve complex customer concerns, while the ChatBOT can promptly address more rudimentary issues. The Postal Service believes that this may have positively impacted customer experiences and estimates, therefore, that this improved the overall customer satisfaction survey results.
- e. The Postal Service has learned that the ChatBOT can be a valuable customer service resolution tool. Using Natural Language Processing, the Postal Service continues to improve the ChatBOT, including by integrating more information about customers' ever-changing needs and concerns. The Postal Service anticipates that this will improve the ChatBOT's ability to effectively resolve customer concerns in FY 2023.

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- 5.** Please describe any other AI-based resources or tools that the Postal Service developed or implemented during FY 2022 to help meet the Excellent Customer Experience performance goal. In the response, please explain how each AI resource or tool helped customers address their issues or inquiries.

RESPONSE:

In FY 2022, the Postal Service upgraded its Artificial Intelligence Virtual Agent (AIVA) application to provide parcel tracking capabilities. AIVA is a voice application which can interpret and understand customer inquiries using natural language processing to provide pre-scripted answers and/or execute requests based on specified business rules. FY 2022 enhancements included the ability to track packages and provide customers with an updated status, to analyze that status and provide customers with next steps, and to optionally enroll customers in proactive tracking text message notifications.

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- 6.** Please refer to the other AI-based resources or tools provided in response to question 5. For each AI-based resource or tool, please provide:
- a. The total number of interactions handled with customers in FY 2022.
 - b. The number of interactions that resolved the customer's issue without contacting a live agent.
 - c. An estimate of the impact on CX survey results in FY 2022.
 - d. Any lessons learned from using the AI resource or tool in FY 2022 and any plans to improve the resource or tool's efficacy in FY 2023.

RESPONSE:

- a. In FY 2022, AIVA handled a total of 1,399,203 customer calls.
- b. In FY 2022, of the 1,399,203 customer calls handled by AIVA, 871,947 calls ended without live agent involvement.
- c. AIVA's Overall Satisfaction Score in FY 2022 was 59.12 percent. AIVA Satisfaction Scores are identified by segregating them from the Customer Care Center Interactive Voice Response Survey.
- d. The major lesson learned from the AIVA FY 2022 expansion was the importance of the "conversation" with the caller, which should not only sound human-like, but should also properly process free-form feedback and follow-up questions. The Postal Service is exploring ways to analyze AIVA's current conversations and to develop improvements.

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7. Please describe any plans to develop and/or implement other AI-based resources and tools to help improve CX in FY 2023 and future years.

RESPONSE:

The Postal Service is investigating three major AIVA enhancements, which may be implemented in FY 2023: (1) the capability to open a customer support service request when a customer requires human assistance; (2) the ability to proactively notify a customer when a package status with an open case is updated; and (3) the ability to create a testing platform where the Postal Service could test new conversations with a small subset of customers prior to general deployment.